CLAIMS

We claim:

1. A business method for identifying a compound as a candidate for pharmaceutical development, comprising the steps of:
   (a) administering a compound to one or more test animals;
   (b) obtaining the gene expression patterns induced by administration of the compound in organs from the test animals; and
   (c) identifying the function of the compound *in vivo*, wherein the identification of the function of the compound *in vivo* indicates whether the compound is a candidate for pharmaceutical development.

2. The method of claim 1, wherein the step of obtaining the gene expression pattern further comprises:
   comparing the gene expression patterns of the test animals to a control gene expression pattern.

3. The method of claim 1 or 2, wherein the identity of the compound is not known by the administrator.

4. The method of any one of claims 1 to 3, wherein the function of the compound is not known by the administrator.

5. The method of any one of claims 1 to 4, wherein the compound is a protein or a peptide.

6. The method of any one of claims 1 to 5, wherein administration is the direct administration of the compound.

7. The method of any one of claims 1 to 5, wherein administration is the indirect administration of the compound.

8. The method of any one of claims 1 to 7, wherein the test animals are selected from the group consisting of mouse, rat and monkey.

9. The method of any one of claims 1 to 8, wherein the test animals comprise either both mice and monkeys or both rats and monkeys.

10. The method of any one of claims 1 to 9, wherein the obtaining of the gene expression pattern is by organism-wide gene expression profiling.

11. The method of any one of claims 1 to 10, wherein the test animals are mice and wherein the gene expression patterns of at least twenty-five organs are obtained.

12. The method of any one of claims 1 to 10, wherein the test animals are monkeys and wherein the gene expression patterns of at least 120 organs are obtained.

13. The method of any one of claims 1 to 12, wherein the comparing of the gene expression patterns of the test animals comprises an analysis of multiple targets and indications.

14. The method of any one of claims 1 to 13, wherein the comparing of the gene expression patterns of the test animals comprises integrating information from genomic databases.

15. The method of any one of claims 1 to 14, wherein the identifying of the function of the compound comprises an initial step of excluding from further analysis those genes whose values are systematically in the lower expression ranges where the experimental noise is high

16. The method of any one of claims 1 to 15, wherein the identifying of the function of the compound comprises the step of selecting a threshold t-test p-value that identifies

genes with different values between treated and non-treated based on a two component error model.

17. A system for identifying a compound as a candidate for pharmaceutical development, comprising:

(a) an apparatus for obtaining the gene expression patterns induced by administration of the compound in organs obtained from the test animals, the gene expression patterns being stored in digital format in a memory storage device;

(b) a database comprising stored the gene expression patterns of animals (i) having the same or different predetermined genetic composition from said test animals and (ii) which have been exposed to either control conditions and/or treatment with compounds similar to the test compounds;

(c) means for comparing the collected gene expression patterns with the stored gene expression patterns and determining the presence or absence of correlations; and

(d) means for determining the function of the test compound on the basis of the presence or absence of the correlations, wherein the identification of the function of the compound *in vivo* indicates whether the compound is a candidate for pharmaceutical development.

18. Use of a polypeptide for the manufacture of a medicament for use in the treatment of a disease associated with deregulated angiogenesis wherein the polypeptide is selected from the groups consisting of

(a) fibroblast growth factor 23 (FGF-23) (SEQ. ID No: 1) or a fragment of FGF-23;

(b) a bioactive polypeptide having a percentage of identity of at least 50% with the amino acid sequence of any one of the polypeptides of (a);

(c) a bioactive variant of any one of the polypeptides of (a) or (b).

19. Use of a polypeptide according to claim 18, wherein the disease associated with deregulated angiogenesis is selected from the group of retinopathies, age-related macular degeneration, haemangioblastoma, haemangioma and tumors.

20. Use of a polypeptide according to claim 18 or 19, wherein the disease associated with deregulated angiogenesis is retinopathy.

21. Use of a polypeptide as defined in any one of the groups (a), (b) or (c) of claim 18 for the manufacture of a medicament for use in the treatment of a cell proliferative disorder..

22. Use of a polypeptide according to claim 21, wherein the cell proliferative disorder is selected from the group of chronic or acute renal diseases, arteriosclerosis, atherosclerosis, psoriasis, endometriosis, diabetes, chronic asthma and cancer.

23. Use of a polypeptide according to claim 21 or 22, wherein the cell proliferative disorder is cancer.

24. Use of a polypeptide according to any one of claims 18 to 23, wherein the polypeptide is encoded by a nucleic acid which hybridizes under stringent conditions to SEQ. ID No: 3.

25. Use of a polypeptide according to any one of claims 18 to 24, wherein the polypeptide comprises a C-terminal fragment of FGF-23.

26. Use of a polypeptide according to claim 25, wherein the polypeptide comprises at least 15 amino acids of the C-terminus of FGF-23.

27. Use of a polypeptide according to claim 25 or 26, wherein the polypeptide has an amino acid sequence of SEQ ID No: 2.

28. Use of a polypeptide according to any one of claims 25 to 26, wherein the polypeptide is encoded by a nucleic acid which hybridizes under stringent conditions to SEQ. ID No: 4.

29. A method for the treatment of a disease associated with deregulated angiogenesis comprising administering an effective amount of a polypeptide to a mammal including a human suffering from the disease, wherein the polypeptide is selected from the groups consisting of

(a) fibroblast growth factor 23 (FGF-23) (SEQ. ID No: 1) or a fragment of FGF-23;

(b) a bioactive polypeptide having a percentage of identity of at least 50% with the amino acid sequence of any one of the polypeptides of (a);

(c) bioactive variant of any one of the polypeptides of (a) or (b).

30. A method according to claim 29, wherein the disease associated with deregulated angiogenesis is selected from the group of retinopathies, age-related macular degeneration, haemangioblastoma, haemangioma and tumors.

31. A method according to claim 29 or 30, wherein the disease associated with deregulated angiogenesis is retinopathy.

32. A method for the treatment of a cell proliferative disorder comprising administering an effective amount of a polypeptide as defined in any one of the groups (a), (b) or (c) of claim 29 to a mammal including a human suffering from the disorder.

33. A method according to claim 32, wherein the cell proliferative disorder is selected from the group of chronic or acute renal diseases, arteriosclerosis, atherosclerosis, psoriasis, endometriosis, diabetes, chronic asthma and cancer.

34. A method according to claim 32 or 33, wherein the cell proliferative disorder is cancer.

35. The method for the treatment of a disease or disorder according to any of claims 29 to 34 in which the effective amount of the polypeptide is administered intravenously, intramuscularly, subcutaneously, orally or topically.

36. The method for the treatment of a disease or disorder according to any one of claims 29 to 35, wherein the polypeptide is encoded by a nucleic acid which hybridizes under stringent conditions to SEQ. ID No: 3.

37. The method for the treatment of a disease or disorder according to any of claims 29 to 36, wherein the polypeptide comprises a C-terminal fragment of FGF-23.

38. The method for the treatment of a disease or disorder according to claim 37, wherein the polypeptide comprises at least 15 amino acids of the C-terminus of FGF-23.

39. The method for the treatment of a disease or disorder according to claims 37 or 38, wherein the polypeptide has an amino acid sequence of SEQ ID No: 2.

40. The method for the treatment of a disease or disorder according to any one of claims 37 to 39, wherein the polypeptide is encoded by a nucleic acid which hybridizes under stringent conditions to SEQ. ID No: 4.

41. A pharmaceutical composition for use in a disease associated with deregulated angiogenesis comprising a polypeptide as defined in claims 18, and 24 to 28 and a pharmaceutically-acceptable carrier.

42. A pharmaceutical composition for use in a cell proliferative disorder comprising a polypeptide as defined in claims 18, and 24 to 28 and a pharmaceutically-acceptable carrier.